

1 **What is claimed is:**

- 2 1. An oven intake for a gas chromatographic (GC) oven, comprising:
3 an intake duct having a convergent geometry to accommodate a small oven, the
4 intake duct having one or more intake fans that supply airflow to the GC oven, wherein
5 the airflow originates from the one or more intake fans and flows through the intake duct
6 into the GC oven; and
7 one or more cross-sheets positioned inside the intake duct parallel to a direction of
8 the airflow flowing into the GC oven, wherein the one or more cross-sheets reduce spin of
9 the airflow originating from the one or more intake fans and help guide the airflow
10 through the intake duct into the GC oven.
- 11 2. The oven intake of claim 1, wherein the intake duct has a non-uniform cross-
12 section.
- 13 3. The oven intake of claim 1, wherein each of the one or more cross-sheets has a
14 converging shape that conforms to the convergent geometry of the intake duct.
- 15 4. The oven intake of claim 1, wherein each of the one or more cross-sheets is
16 secured to the intake duct by riveting one or more metal tabs.
- 17 5. The oven intake of claim 1, wherein the number of cross-sheets positioned inside
18 the intake duct to guide the airflow through the intake duct is one of: two, three or four.
- 19 6. The oven intake of claim 1, wherein one cross-sheet is installed off center with
20 respect to an axis of spin of the airflow to guide the airflow through the intake duct.
- 21 7. The oven intake of claim 1, wherein the one or more cross-sheets are positioned
22 proximately to the one or more intake fans inside the intake duct.
- 23 8. The oven intake of claim 1, wherein the one or more intake fans are axial boxer
24 fans located at one end of the intake duct.
- 25 9. The oven intake of claim 1, wherein the intake duct has a conical shape.
- 26 10. The oven intake of claim 1, wherein the one or more cross-sheets reduce frictional
27 losses of the airflow flowing into the GC oven, introduce a larger volume of air to the GC
28 oven, and reduce a cool-down time of the GC oven.
- 29 11. The oven intake of claim 1, wherein two cross-sheets are placed in an “=”
30 configuration at one-third and two-thirds of a width of the intake duct.
- 31 12. The oven intake of claim 1, wherein the spin of the airflow originates from a
32 source other than the one or more intake fans.
- 33 13. A system for providing intake cross-sheets for a gas chromatographic (GC) oven,
34 comprising:

1 an intake duct having a convergent section to accommodate the GC oven located
2 at one end of the intake duct;

3 one or more intake fans located remotely from the GC oven at an opposite end of
4 the intake duct, the one or more intake fans supplying airflow to the GC oven; and

5 one or more cross-sheets positioned inside the intake duct parallel to a direction of
6 the airflow flowing into the GC oven, wherein the one or more cross-sheets reduce spin of
7 the airflow originating from the one or more intake fans and reduce frictional losses of the
8 airflow flowing into the GC oven.

9 14. The system of claim 13, wherein each of the one or more cross-sheets has a
10 converging shape that approximates the convergent section of the intake duct.

11 15. The system of claim 13, wherein two cross-sheets are positioned inside the intake
12 duct to guide the airflow through the intake duct.

13 16. The system of claim 13, wherein the one or more cross-sheets are positioned
14 proximately to the one or more intake fans inside the intake duct.

15 17. A method for cooling an oven, comprising:

16 providing one or more cross-sheets inside an intake duct parallel to a direction of
17 airflow flowing into the oven, wherein the intake duct has a convergent geometry to
18 accommodate the oven and has one or more intake fans located remotely from the oven,
19 and wherein the one or more intake fans supply airflow for the oven; and

20 enabling the one or more cross-sheets to reduce spin of the airflow originating
21 from the one or more intake fans and reduce a cool-down time of the oven.

22 18. The method of claim 17, wherein each of the one or more cross-sheets has a
23 converging shape that conforms to the convergent geometry of the intake duct.

24 19. The method of claim 17, further comprising positioning two cross-sheets inside
25 the intake duct to help guide the airflow through the intake duct.

26 20. The method of claim 17, further comprising positioning the one or more cross-
27 sheets proximately to the one or more intake fans inside the intake duct.